

***The following eight indicators (6.8 -6.15) should be selected as appropriate to a particular course for additional content and depth:***

C-6.8 Use the hydronium or hydroxide ion concentration to determine the pH and pOH of aqueous solutions.

**Revised Taxonomy Level 3.2 C<sub>A</sub> Apply (use) procedural knowledge**

**Students did not study this concept in physical science**

**It is essential for students to**

- ❖ Define pH and pOH and relate the definitions to the self-ionization of water
- ❖ Use logs and exponents to determine the pH or pOH of a substance from the concentration of the solution.
- ❖ Compare pH as determined by pH meters and indicator paper

**Assessment**

The revised taxonomy verb for this indicator is implement (use). The major focus of assessment will be for students to show that they can “apply a procedure to an unfamiliar task.” The knowledge dimension of the indicator, procedural knowledge means “knowledge of subject-specific techniques and methods.” In this case the procedure for calculating the pH and the pOH of a solution. A key part of the assessment will be for students to show that they can apply the knowledge to a new situation, not just repeat problems which are familiar. This requires that students have a conceptual understanding of pH and pOH as they apply it to the concentration of hydrogen ions and hydroxide ions in a solution.